

REMARKS

Applicant respectfully requests reconsideration. Claims 11-48 were previously pending in this application. Claim 11 has been amended to include the recitation of claim 43. Claim 32 has been amended to include the recitation of claim 44. Claims 20, 21 and 39 have been amended to change their dependency. Claims 16-19, 38, 43 and 44 have been cancelled. No new matter has been added. Applicant submits that the amendments do not raise new issues and, thus, respectfully requests entry of this amendment. Claims 11-15, 20-37, 39-42 and 45-48 are now pending for examination, with claims 11 and 32 being independent claims.

Rejection of Claims 11-42 Under 35 U.S.C. §103(a)

Claims 11-42 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,028,556 (Chang) in view of U.S. Patent No. 5,298,452 (Meyerson). The Office Action states that it would have been obvious to one of ordinary skill in the art to modify Chang with the Meyerson process of forming epitaxial silicon. Applicant respectfully traverses this rejection.

Without acceding to the correctness of this rejection, independent claims 11 and 32 were amended to respectively include recitations of claims 43 and 44. Applicant notes that the patentability of claims 43 and 44, which were added in the most recently filed amendment (filed on July 23, 2003), was not addressed in the Office Action. Amended claims 11 and 32 recite that the defects are formed by implanting an electrically neutral species. As noted in the Office Action, Chang discloses implanting P⁺ ions (e.g., positively charged boron ions) in a substrate to form buried layer 13, in contrast to implanting electrically neutral species as claimed. Meyerson does not teach any implantation step. Therefore, the combination of Chang in view of Meyerson fails to teach each recitation of amended independent claims 11 and 32.

Furthermore, it would not have been obvious to one of ordinary skill in the art to further modify the combination of Chang and Meyerson to implant an electrically neutral species as claimed. The P⁺ ions (e.g., positively charged boron ions) are implanted in Chang to form a buried layer 13 that defines a subsequently formed P-well 20 (see Chang, col. 2, lines 40-44 and col. 3, lines 11-14) in which other device features are formed (e.g., N⁺ source and drain regions 22a; channel stops 12a, 12b). The P-well is an essential part of the device structures formed in

Chang and could not be formed by implanting an electrically neutral species. Therefore, if the Chang and Meyerson combination was further modified to implant an electrically neutral species, instead of P⁺ ions, the modification would change the principle operation of the Chang device and render the device unsatisfactory for its intended purpose because of the absence of the P-well. Thus, the Chang and Meyerson combination teaches away from being further modified to implant an electrically neutral species as recited in amended independent claims 11 and 32. Because one of ordinary skill in the art would not be motivated to further modify the Chang and Meyerson combination in this manner, a prima facie case of obviousness would not be met.

Applicant also respectfully disagrees that one of ordinary skill in the art would have been motivated to combine Chang and Meyerson as suggested in the Office Action for the reasons stated in the most recently filed amendment (filed on July 23, 2003). Namely, because of the difficulties (e.g. stringent process condition including very low pressures; complex, non-conventional apparatus) of performing the Meyerson epitaxial deposition step and the lack of need for precise control over epitaxial layer uniformity in Chang's device, one of ordinary skill would not have been motivated to modify Chang's method to include the Meyerson epitaxial growth step.

Applicant also respectfully disagrees with the assertion in the Office Action that the combination of Chang and Meyerson would inherently anticipate the recitations in claims 27 and 32 that the silicon layer has a different crystalline orientation than the substrate for the reasons stated in the amendment filed on July 23, 2003.

For at least these reasons, applicant respectfully requests withdrawal of the rejection of claims 11-42 under 35 U.S.C. §103(a) as being unpatentable over Chang in view of U.S. Patent Meyerson.

Double Patenting Rejections

Claims 11, 16, 17, 19, 20, 21, 23-32, 34, 35 and 38-42 were rejected under the judicially created doctrine of obviousness type double-patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,165,265 (Gris). Claims 13-15 and 36-37 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-8 of Gris in view of Meyerson. Claims 12, 18, 22 and 33 were rejected under the judicially created

doctrine of obviousness-type double-patenting as being unpatentable over claims 1-8 of Gris in view of U.S. Patent No. 4,401,506 (Otsuka).

Without acceding to the correctness of these rejections, Applicant is filing herewith a terminal disclaimer signed by James H. Morris (an attorney of record) to overcome these rejections. Accordingly, Applicant respectfully requests withdrawal of these claims rejections on this ground.

Serial No.: 09/988,233
Conf. No.: 8198

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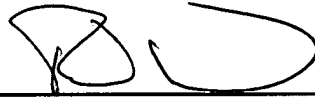
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CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,
Gris, et al., Applicants

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Docket No. S1022.80800US00
Date: January 22, 2003
x01/22/04x